

ShoPro® Series Level Display | Controller Operating Manual



Table of Contents

Safety Information 03

Technological Progress 03

Product Description 03

Features 04

Working Principle 04

Technical Specifications 04

Installation Instructions 05

Wall Mounting Installation 05

Pipe Clamp Installation 06

Quick Wire Connection 06

Internal Wire Connection 07

Front Panel Description 08

Programming Display 09

Alarm Set 10

Troubleshooting 11

Warranty, Returns & Limitations 12



Corrosion-Free
Instrumentation Equipment

Safety Information



Warning | Caution | Danger

Indicates a potential hazard. Failure to follow all warnings may lead to equipment damage, injury, or death



IMPORTANT!

Indicates situations or cases which, if not avoided, could result in damage or failure of the **Products** equipment.



Note | Technical Notes

Highlights additional information or detailed procedure.



Do Not Use Tools

Use of tool(s) may damage product beyond repair and potentially void product warranty.

Basic Requirements & User Safety

- ⊗ Do not use the unit in areas threatened with excessive shocks, vibrations, dust, humidity, corrosive gasses and oils.
- ⊗ Do not use the unit in areas where there is risk of explosions.
- ⊗ Do not use the unit in areas with significant temperature variations, exposure to condensation or ice.
- ⊗ Do not use the unit in areas exposed to direct sunlight.
- ⊗ Make sure that the ambient temperature (e.g. inside the control box) does not exceed the recommended values. In such cases forced cooling of the unit must be considered (e.g. by using a ventilator).
- ⊗ The manufacturer is not responsible for any damages caused by inappropriate installation, not maintaining the proper environmental conditions and using the unit contrary to its assignment.
- ⊗ Installation should be conducted by qualified personnel. During installation all available safety requirements should be considered. The fitter is responsible for executing the installation according to this manual, local safety and EMC regulations.
- ⊗ GND input of device should be connected to PE wire;
- ⊗ The unit must be properly set-up, according to the application. Incorrect configuration can cause defective operation, which can lead to unit damage or an accident.
- ⊗ If in the case of a unit malfunction there is a risk of a serious threat to the safety of people or property additional, independent systems and solutions to prevent such a threat must be used.
- ⊗ The unit uses dangerous voltage that can cause a lethal accident. The unit must be switched off and disconnected from the power supply prior to starting installation of troubleshooting (in the case of malfunction).
- ⊗ Neighboring and connected equipment must meet the appropriate standards and regulations concerning safety and be equipped with adequate overvoltage and interference filters.
- ⊗ Do not attempt to disassemble, repair or modify the unit yourself. The unit has no user serviceable parts. Defective units must be disconnected and submitted for repairs at an authorized service center.

 **The unit is designed for operation in an industrial environment and must not be used in a household environment or similar.**

Technological Progress

The manufacturer reserves the right to revise, alter, or modify the flow meter to the most current technology without special prior notice. Further information about the latest updates and potential additions to these operating instructions are available from www.iconprocon.com

Product Description

The **ShoPro® Series** Flow Display & Batcher is the industry's most rugged and reliable wall-mount remote display. The **ShoPro® Series** will display both Flow Rate and Flow Total up to 16 digits.

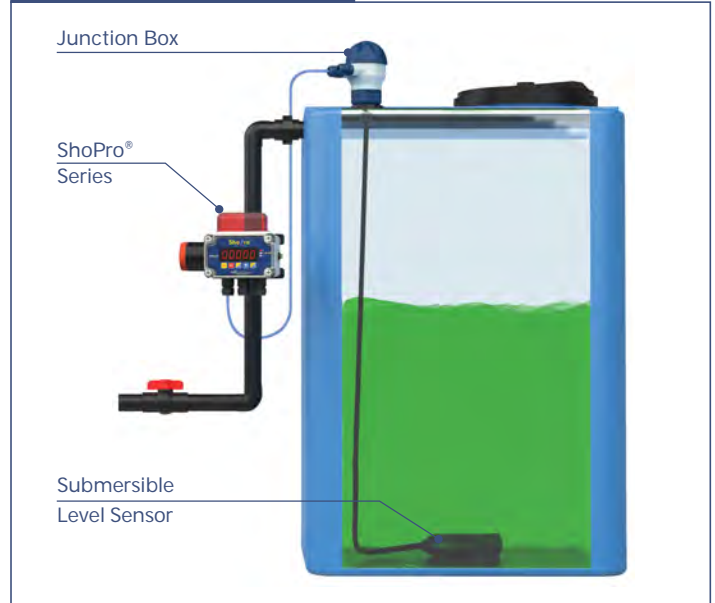
The **ShoPro® Series** comes as a complete all-in-one unit, out of the box it is ready to use. Included is a bright LED Display, NEMA 4X Enclosure, Polycarbonate Faceplate, Cord Grips and Plastic Captive Screws.

The industrial design ensures that it will withstand the industry's most corrosive environments. Available with Two 5A Relay + 4-20mA Output

Features

- ✓ All-in-One | Out of the Box Ready to Use
- ✓ Visual Alarm - High | Low Level
- ✓ NEMA 4X Enclosure
- ✓ New Easy-Learn® Programming
- ✓ SunBright Technology for Outdoor Applications
- ✓ No Assembly Required
- ✓ 2 Wire Cord Grips - No Tools Required
- ✓ Corrosion Resistant Thermoplastic
- ✓ Two 5A Relay + 4-20mA Output
- ✓ Flow Rate and Flow Total up to 16 digits

Working Principle



Technical Specifications

General	
Display	LED 5 x 13mm High Red
Displayed Values	-99999 ± 99999
Stability	50 ppm °C
Transmission Parameters	1200...115200 bit/s, 8N1 / 8N2
Protection Class	NEMA 4X IP67
Input Signal Supply	
Standard	Current : 4-20mA
Voltage	85 - 260V AC/DC 16 - 35V AC, 19 - 50V DC*
Output Signal Supply	
Standard	2 x Relays 5A +4-20mA
Voltage	24 VDC
Passive Current Output*	4-20mA (Operating Range Max. 2.8 - 24mA)
Performance	
Accuracy	0.1% @ 25°C One Digit
Accuracy According to IEC 60770 - Limit Point Adjustment Non-Linearity Hysteresis Repeatability	
Temperatures	
Operating Temperatures	-40 - 158°F -40 - 70°C
Materials	
Housing	ABS Polycarbonate

Installation Instructions

The unit has been designed and manufactured in a way assuring a high level of user safety and resistance to interference occurring in a typical industrial environment. In order to take full advantage of these characteristics installation of the unit must be conducted correctly and according to the local regulations.

- ⊗ Read the basic safety requirements on page 3 prior to starting the installation.
- ⊗ Ensure that the power supply network voltage corresponds to the nominal voltage stated on the unit's identification label.
- ⊗ The load must correspond to the requirements listed in the technical data.
- ⊗ All installation works must be conducted with a disconnected power supply.
- ⊗ Protecting the power supply connections against unauthorized persons must be taken into consideration.

UNPACKING

After removing the unit from the protective packaging, check for transportation damage. Any transportation damage must be immediately reported to the carrier. Also, write down the unit serial number located on the housing and report the damage to the manufacturer.

- ⊗ User's Manual
- ⊗ Warranty

Wall Mounting

<p>1</p> <p>To install device on the wall, pinholes should be made.</p>	<p>2</p> <p>Loosen Screws for Open Display Cover</p>	<p>3</p> <p>Remove Transparent Cover</p>
<p>4</p> <p>Mounted to a wall by Screws</p>	<p>5</p> <p>Tighten Screws</p>	<p>6</p> <p>Insert Transparent Cover</p>

Pipe Clamp Installation

1

Do Not Use Tools

Open Clamp use only **Hand**,
DO NOT use any tools

2

Open Clamp

3

Do Not Use Tools

Insert Pipe & Lock Clamp

Quick Wire Connection

1

Turn Cable Grip Nut Counter-Clockwise

2

Remove Nut and Cable Grip

3

Wire Clamp Open

Insert Wire in Cable Grip Nut

4

Power
Red Terminals : 120V AC wire
Blue Terminals : 0V AC wire

4-20mA Output

Sensor
Red Terminals : **Red** wire (+)
Blue Terminals : **Black** wire (-)

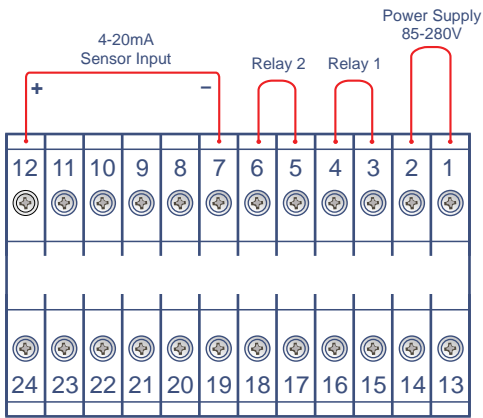
5

Insert Cable in Terminals
Wire Clamp Close

6

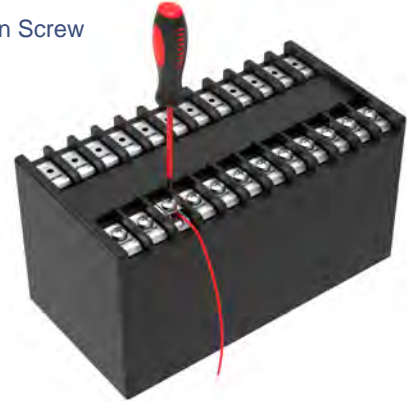
Turn Cable Grip Nut Clockwise

Internal Wire Connection

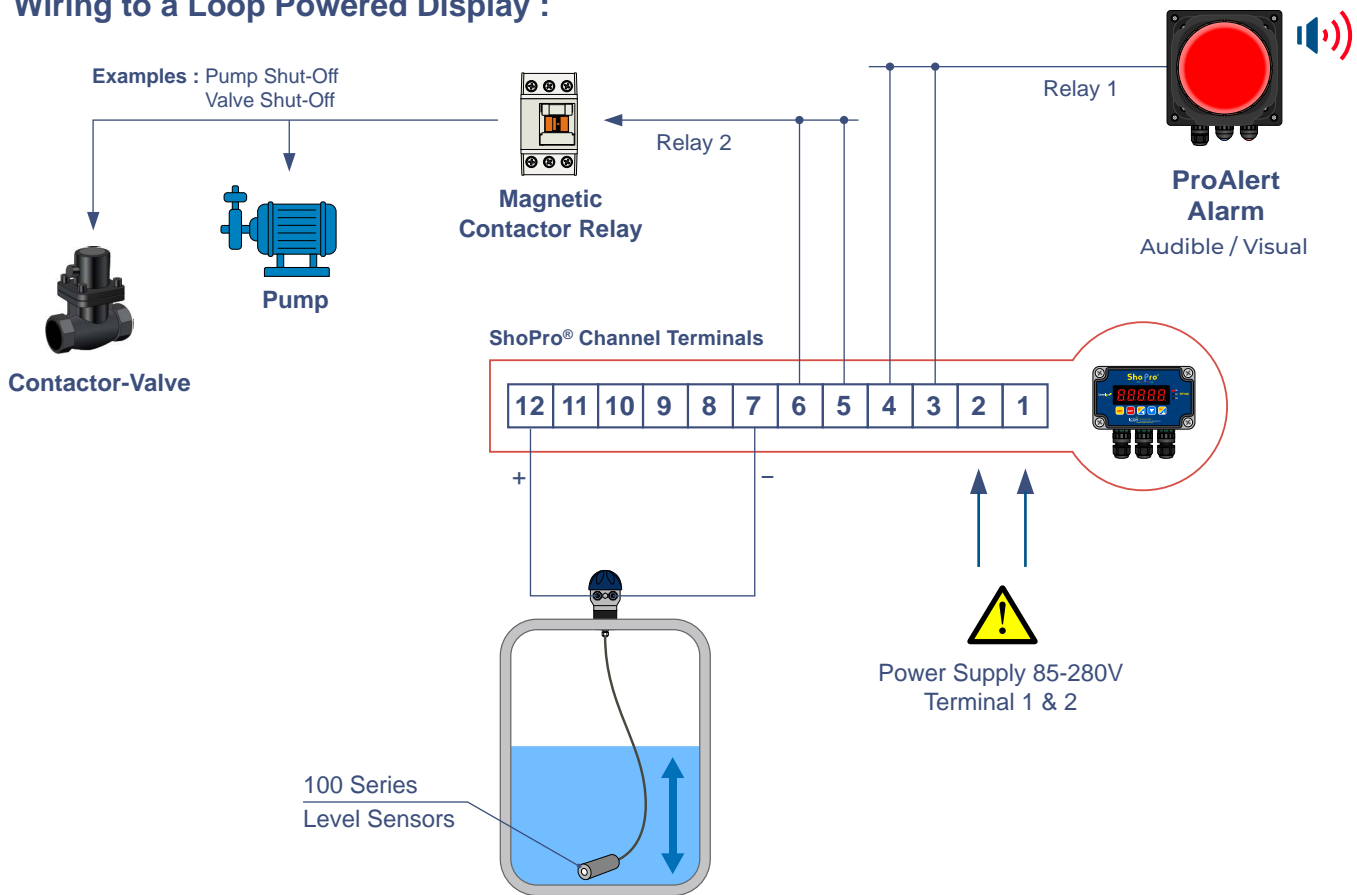


ShoPro® Channel Terminals

- ✔ Use Screwdriver and Loosen Screw
- ✔ Insert Wire
- ✔ Tighten Screw



Wiring to a Loop Powered Display :



- ✔ Shielded cable is recommended for control loop wiring.
- ✔ Use the Red wire as the (+) and the Black wire as the (-).

Front Panel Description



Symbols & Functions of Push Buttons:



Symbol used in the manual : [dSP]

- Enter to Programming menu (Press and Hold for at least 3 sec.)



Symbol used in the manual : [SET]

- Save the Value



Symbol used in the manual : [F/◀]

- [F] Press HOLD 3 SEC for Alarm Set
- [▶] Back Menu



Symbol used in the manual : [▼]

- Changing the values

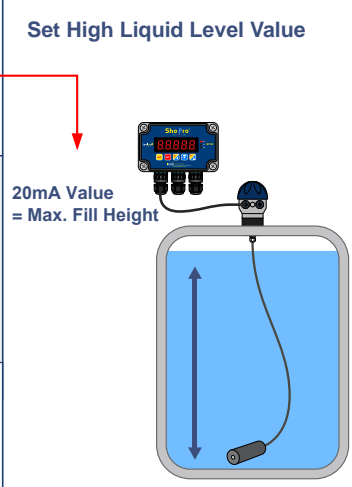
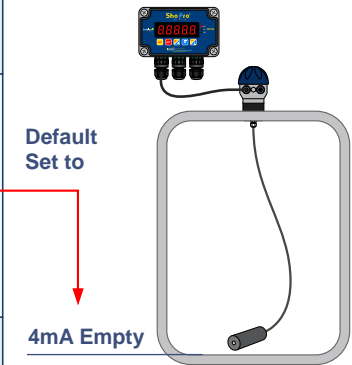


Symbol used in the manual : [Sht / ▲]

- [Sht] Back to Main Display
- [▲] Changing the values

Programming Display

STEPS	DISPLAY	ACTION
#1 Main Display Press HOLD 3 SEC		1st. Step Press and Hold key 3 SEC
#2 Low Level Value Press Key	 Low Value - 4mA = 0	2nd. Step Press key for Low Value
#3 Low Value Set Press Key		3rd Step Default Preset = 0000.0 No need to change
#4 High Level Value Press Key	 Enter Max Tank Value	 4th Step Change number to Desired value (Note: This value is your max tank level)
#5 High Level Set Press Key to SAVE		5th Step Press to SAVE
#6 Return to Main Display		6th Step Return to Main Display



dSPL = Low Value - Empty or Lowest Liquid Level - Factory Default is 0
 dSPH = High Value - Enter Figure for Maximum Tank Fill Height

Alarm Set

STEPS	DISPLAY	ACTION
<p>Main Display</p> <p>Press F HOLD 3 SEC</p>		
<p>#1 Alarm Setting Status</p> <p>Press SET Key</p>	<p>Low Value - 4mA = 0</p>	<p>1. 「ALt.0」:</p>
<p>#1 Alarm Value Setting</p> <p>Press SET Key</p>		<p>2. 「ALt.1」:</p> <p>PV ≥ AL1 → AL1 Relay ON PV < (AL1-HYS) → AL1 Relay OFF PV ≥ AL2 → AL2 Relay ON PV < (AL2-HYS) → AL2 Relay OFF</p>
<p>#2 Alarm Setting Status</p> <p>Press SET Key</p>	<p>Enter Max Tank Value</p>	<p>3. 「ALt.2」:</p> <p>PV ≥ AL1 → AL1 Relay ON PV < (AL1-HYS) → AL1 Relay OFF PV ≤ AL2 → AL2 Relay ON PV > (AL2+HYS) → AL2 Relay OFF</p>
<p>#2 Alarm Value Setting</p> <p>Press SET Key</p>		<p>4. 「ALt.3」:</p> <p>PV ≤ AL1 → AL1 Relay ON PV > (AL1+HYS) → AL1 Relay OFF PV ≤ AL2 → AL2 Relay ON PV > (AL2+HYS) → AL2 Relay OFF</p>
<p>Alarm Hysteresis Setting Status</p> <p>Press SET Key</p>		
<p>Alarm Hysteresis Setting</p> <p>Press SET Key</p>		

Warranty, Returns & Limitations

Warranty

Icon Process Controls Ltd warrants to the original purchaser of its products that such products will be free from defects in material and workmanship under normal use and service in accordance with instructions furnished by Icon Process Controls Ltd for a period of one year from the date of sale of such products. **Icon Process Controls Ltd** obligation under this warranty is solely and exclusively limited to the repair or replacement, at **Icon Process Controls Ltd** option, of the products or components, which **Icon Process Controls Ltd** examination determines to its satisfaction to be defective in material or workmanship within the warranty period. Icon Process Controls Ltd must be notified pursuant to the instructions below of any claim under this warranty within thirty (30) days of any claimed lack of conformity of the product. Any product repaired under this warranty will be warranted only for the remainder of the original warranty period. Any product provided as a replacement under this warranty will be warranted for the one year from the date of replacement.

Returns

Products cannot be returned to **Icon Process Controls Ltd** without prior authorization. To return a product that is thought to be defective, go to www.iconprocon.com, and submit a customer return (MRA) request form and follow the instructions therein. All warranty and non-warranty product returns to **Icon Process Controls Ltd** must be shipped prepaid and insured. **Icon Process Controls Ltd** will not be responsible for any products lost or damaged in shipment.

Limitations

This warranty does not apply to products which: 1) are beyond the warranty period or are products for which the original purchaser does not follow the warranty procedures outlined above; 2) have been subjected to electrical, mechanical or chemical damage due to improper, accidental or negligent use; 3) have been modified or altered; 4) anyone other than service personnel authorized by Icon Process Controls Ltd have attempted to repair; 5) have been involved in accidents or natural disasters; or 6) are damaged during return shipment to **Icon Process Controls Ltd** reserves the right to unilaterally waive this warranty and dispose of any product returned to **Icon Process Controls Ltd** where: 1) there is evidence of a potentially hazardous material present with the product; or 2) the product has remained unclaimed at Icon Process Controls Ltd for more than 30 days after Icon Process Controls Ltd has dutifully requested disposition. This warranty contains the sole express warranty made by **Icon Process Controls Ltd** in connection with its products. **ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY DISCLAIMED.** The remedies of repair or replacement as stated above are the exclusive remedies for the breach of this warranty. **IN NO EVENT SHALL Icon Process Controls Ltd BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING PERSONAL OR REAL PROPERTY OR FOR INJURY TO ANY PERSON. THIS WARRANTY CONSTITUTES THE FINAL, COMPLETE AND EXCLUSIVE STATEMENT OF WARRANTY TERMS AND NO PERSON IS AUTHORIZED TO MAKE ANY OTHER WARRANTIES OR REPRESENTATIONS ON BEHALF OF Icon Process Controls Ltd.** This warranty will be interpreted pursuant to the laws of the province of Ontario, Canada.

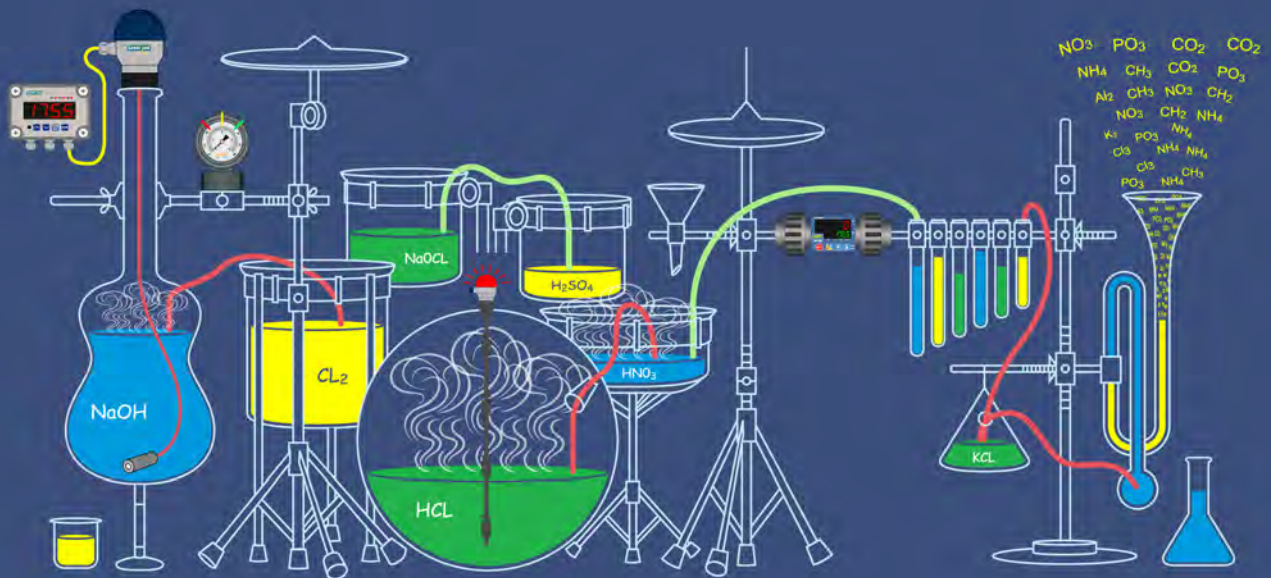
If any portion of this warranty is held to be invalid or unenforceable for any reason, such finding will not invalidate any other provision of this warranty

For additional product documentation and technical support visit www.iconprocon.com | e-mail: sales@iconprocon.com | support@iconprocon.com | Ph: 905.469.9283



Corrosion-Free
Instrumentation Equipment

CORROSION



We Measure & Control
All Kinds of **Corrosive** Liquid **S#*o%**

*Industry's Most Extensive Line of
Corrosion-Free Instrumentation Equipment*



Corrosion-Free
Instrumentation Equipment